Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (original): A method for searching an audio database for a target audio clip in a multiprocessor system, comprising:

partitioning said audio database into a plurality of groups;

establishing a model for said target audio clip;

dynamically scheduling said plurality of groups to a plurality of processors in said multiprocessor system; and

processing said scheduled groups in parallel by said plurality of processors to search for said target audio clip.

Claim 2 (original): The method of claim 1, wherein partitioning said audio database comprises determining a size for each of said plurality of groups, said size being determined to reduce the amount of overlapped computation among said plurality of groups and load imbalance in parallel processing of said plurality of groups.

Claim 3 (original): The method of claim 1, wherein establishing a model for said target audio clip comprises extracting a feature vector sequence from said target audio clip and modeling said feature vector sequence based on a Gaussian Mixture model ("GMM"), said GMM including a plurality of Gaussian components.

Claim 4 (original): The method of claim 3, wherein modeling said feature vector sequence comprises estimating mixture weights for each of said plurality of Gaussian components.

Claim 5 (original): The method of claim 1, wherein processing said scheduled groups in parallel comprises:

partitioning each of said scheduled groups into at least one segment; and for each segment,

extracting a feature vector sequence for the segment, and

modeling said feature vector sequence based on a Gaussian Mixture model ("GMM"), said GMM including a plurality of Gaussian components.

Claim 6 (original): The method of claim 5, wherein each of said at least one segment has the same length in time as that of said target audio clip.

Claim 7 (currently amended): The method of claim 5, wherein if there [[are]] is more than one ~~segments~~ segment in an audio stream, each segment partially overlaps with a segment that immediately precedes that segment.

Claim 8 (currently amended): The method of claim 5, wherein (a) said plurality of Gaussian components are common for different segments and said target audio clip, and (b) said different segments include equivalent mean and variance values.

Claim 9 (original): The method of claim 8, wherein modeling said feature vector sequence comprises estimating mixture weights for each of said plurality of Gaussian components.

Claim 10 (original): The method of claim 9, further comprising: for each segment,

computing a Kullback-Leibler ("KL") distance between a GMM of said segment and a GMM of said target audio clip; and

determining that said segment matches said target audio clip, if said KL distance is smaller than a pre-determined threshold.

Claim 11 (original): The method of claim 10, further comprising skipping processing a number of segments if said KL distance is larger than a predetermined value, said number of segments dependent on the value of said KL distance.

Claim 12 (cancelled):

Claim 13 (original): An apparatus for searching an audio database for a target audio clip in a multiprocessor system, comprising:

a partitioning module to partition said audio database into a plurality of groups;

a scheduler to dynamically schedule said plurality of groups to a plurality of processors in said multiprocessor system; and

an audio searching module for each of said plurality of processors to process said scheduled groups in parallel by said plurality of processors to search for said target audio clip.

Claim 14 (original): The apparatus of claim 13, wherein said partitioning module further determines a size for each of said plurality of groups, said size being determined to reduce the amount of overlapped computation among said plurality of groups and load imbalance in parallel processing of said plurality of groups.

Claim 15 (original): The apparatus of claim 13, wherein an audio searching module comprises:

a feature extractor to partition an input audio stream into at least one segment and to extract a feature vector sequence from each of said at least one segment, said at least one segment having the same length in time as that of said target audio clip; and

a modeling module to model said feature vector sequence for each segment based on a Gaussian Mixture model ("GMM"), said GMM including a plurality of Gaussian components, said plurality of Gaussian components being common among all of the segments.

Claim 16 (original): The apparatus of claim 15, wherein one of audio searching modules further process said target audio clip by extracting a feature vector sequence from said

target audio clip and by modeling said feature vector sequence using said GMM, said GMM including a plurality of Gaussian components common for said target audio clip and segments of said input audio stream.

Claim 17 (original): The apparatus of claim 16, wherein an audio searching module further comprising a decision maker to compute a Kullback-Leibler ("KL") distance between a GMM of a segment of said input audio stream and a GMM of said target audio clip; and to determine whether said segment matches said target audio clip based on said KL distance.

Claim 18 (original): The apparatus of claim 17, wherein said decision module further determines how many segments are to be skipped from processing based on said KL distance.

Claim 19 (currently amended): An article comprising a machine-readable medium that contains instructions, which when executed by a processing platform, cause said processing platform to perform operations comprising:

partitioning said audio database into a plurality of groups;

establishing a model for ~~said~~ a predetermined, non-randomly selected target audio clip;

dynamically scheduling said plurality of groups to a plurality of processors in said multiprocessor system; and

after partitioning said audio database into the plurality of groups, processing said scheduled groups in parallel by said plurality of processors to search for said target audio clip.

Claim 20 (original): The article of claim 19, wherein partitioning said audio database comprises determining a size for each of said plurality of groups, said size being determined to reduce the amount of overlapped computation among said plurality of groups and load imbalance in parallel processing of said plurality of groups.

Claim 21 (currently amended): The article of claim 19, wherein (a) establishing a model for said target audio clip comprises extracting a feature vector sequence from said target audio clip and modeling said feature vector sequence based on a Gaussian Mixture model

("GMM"), said GMM including a plurality of Gaussian components, and (b) the feature vector sequence respectively includes a feature vector for every frame of a plurality of frames included in the target audio clip.

Claim 22 (cancelled):

Claim 23 (currently amended): The article of claim 19, wherein processing said scheduled groups in parallel comprises:

partitioning each of said scheduled groups into at least one segment; and for each segment,

extracting a feature vector sequence for the segment, and

modeling said feature vector sequence based on a Gaussian Mixture model ("GMM"), said GMM including a plurality of Gaussian components;

wherein the feature vector sequence respectively includes a feature vector for every frame of a plurality of frames included in the segment.

Claim 24 (currently amended): The article of claim [[22]] 21, wherein (a) modeling said feature vector sequence comprises estimating mixture weights for each of said plurality of Gaussian components, and (b) each of said at least one segment has the same length in time as that of said target audio clip.

Claim 25 (currently amended): The article of claim [[22]] 24, wherein if there [[are]] is more than one ~~segments~~ segment in an audio stream, each segment partially overlaps with a segment that immediately precedes that segment.

Claim 26 (currently amended): The article of claim [[22]] 24, wherein said plurality of Gaussian components are common for different segments and said target audio clip.

Claim 27 (currently amended): The article of claim 26, wherein modeling said feature vector sequence comprises ~~estimating mixture weights for each of said plurality of~~

~~Gaussian components~~ modeling said feature vector sequence in a non-repetitive and non-cyclical manner.

Claim 28 (original): The article of claim 27, wherein said operations further comprise: for each segment,

computing a Kullback-Leibler ("KL") distance between a GMM of said segment and a GMM of said target audio clip; and

determining that said segment matches said target audio clip, if said KL distance is smaller than a predetermined threshold.

Claim 29 (currently amended): The article of claim 28, wherein (a) said operations further comprise skipping processing a number of segments if said KL distance is larger than a predetermined value, said number of segments dependent on the value of said KL distance, (b) skipping processing includes skipping extracting a feature vector sequence for each of the skipped segments, the extracting otherwise occurring when said KL distance is smaller than the predetermined value, and (c) the segments to be skipped are sequential, consecutive, and immediately follow said segment upon which the KL distance is based.

Claim 30 (cancelled):

Claim 31 (new): The method of claim 3, wherein processing said scheduled groups in parallel comprises:

partitioning each of said scheduled groups into at least one segment; and for each segment,

extracting a feature vector sequence for the segment, and

modeling said feature vector sequence based on a Gaussian Mixture model ("GMM"), said GMM including a plurality of Gaussian components.

Claim 32 (new): The method of claim 1 including:

establishing a first preliminary model for a first and second frame of said target audio clip;

partitioning each of said scheduled groups into at least one segment; and for each segment,

extracting a first feature vector sequence for a first and second frame of the segment,

establishing a second preliminary model for said first feature vector sequence based on a Gaussian Mixture model ("GMM"), said GMM including a plurality of Gaussian components.

processing said scheduled groups to search for said target audio clip by comparing the first and second preliminary models to produce a preliminary similarity measure; and

extracting a second feature vector sequence for every frame of the segment and establishing a full model for said second feature vector sequence based on the preliminary similarity measure exceeding a threshold.

Claim 33 (new): The method of claim 1, wherein processing said scheduled groups in parallel comprises:

partitioning each of said scheduled groups into at least one segment; and for each segment,

extracting a feature vector sequence for the segment, and

computing a Kullback-Leibler ("KL") distance directly between the feature vector sequence for the segment and a Gaussian Mixture model of said target audio clip; and

determining that said segment matches said target audio clip, if said KL distance is smaller than a pre-determined threshold.